



## Vibra® rail rolling stock components



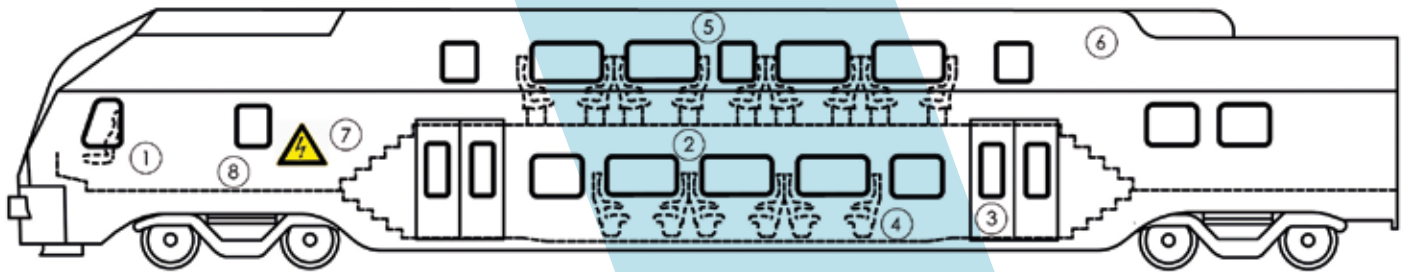


# Insulating against sound and heat in rail vehicle construction

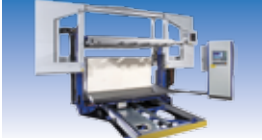
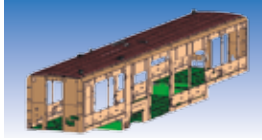
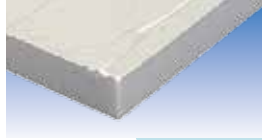
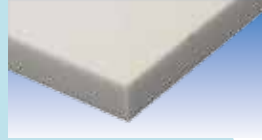
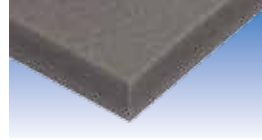
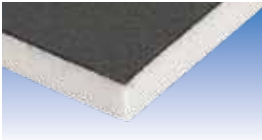
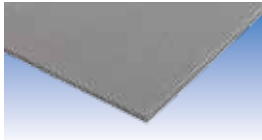
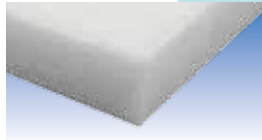
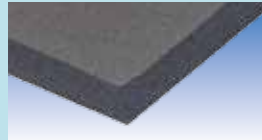
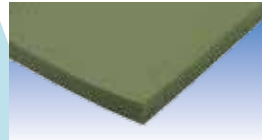
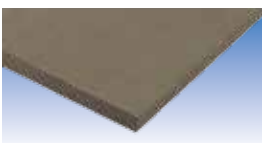
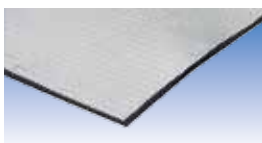

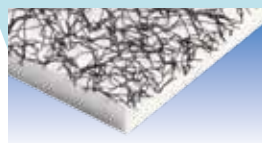

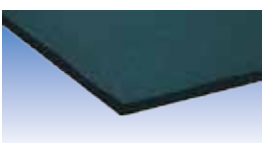

As a long-standing supplier of components for the rail vehicle industry, we have established ourselves as a specialist in the acoustic and thermal insulation sector. We provide acoustically optimized, ready-to-assemble and labelled mounting kits for series requirements in rail vehicle manufacture. The highly modern and efficient production machines are always

state-of-the-art. We are able to carry out the complete production of soundproofing products on site with a great variety of production methods. A starting material that is delivered to our factory as raw block foam leaves it again as a fully mature product. Other core competencies are in noise control engineering, the recording of actual states, as well as the design, calculation

and construction of acoustic measures and solutions in the areas of airborne and structure-borne noise. The design department creates the complete and optimized drawing set of the insulation for the entire vehicle.



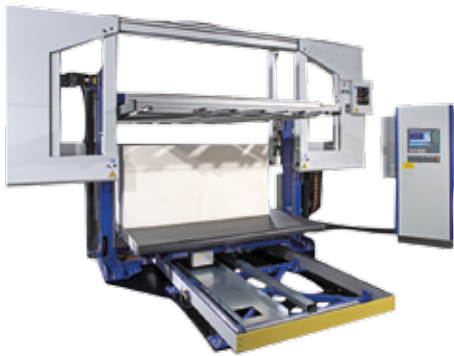
1 Driver's cabin 2 Side wall area 3 Door area 4 Floor area 5 Ceiling area 6 Ventilation ducts 7 Control cabinets/ electrical installations 8 Bogies

 <b>Production</b> Page 3	 <b>Engineering</b> Page 4	 <b>Silphon® 6</b> 1 5 6 Page 5	 <b>Silphon® 7</b> 1 2 3 5 Page 6	 <b>Silphon® 7-H</b> 1 2 3 4 Page 7
 <b>Silphon® 8</b> 1 2 3 5 Page 8	 <b>Plastazote</b> Page 9	 <b>Fiberform 62T</b> 1 2 5 Page 10	 <b>Vibraflex ST</b> 4 5 Page 11	 <b>Vibraflex ECO</b> 4 5 Page 12
 <b>Armaflex NH</b> 4 5 Page 13	 <b>Vibra Railfolie 2.5+4.0</b> 4 6 Page 14-15	 <b>UP GM 203/HM 2471</b> 7 Page 16	 <b>Vibra® Drain</b> 4 Page 17	 <b>Silphon® pyramid-shaped FR</b> 3 6 Seite 18
 <b>Armaflex Rail SD</b> 4 5 Page 19	 <b>Rail rolling stock components</b> 3 6 Page 20-21			



## Production techniques

Our extremely diverse and modern equipped machine park permits high-quality machining with maximum efficiency. The following processing machines are available in Aadorf:



### Vertical contour cutting machine

Almost every soft material can be cut on the world's fastest CNC contour cutting machine. Any number of forms can be cut with filigree contours, high quality and precision.

### Horizontal contour cutting machine

With the advanced CNC horizontal contour cutting machine, foam blocks can be efficiently cleft to the desired thickness, or high-precision parts with a complex geometry can be produced.

### CNC milling system

Our CNC milling system is suitable for materials of almost every degree of hardness. The CNC milling system is also distinguished by its fast acceleration and a high reproducibility.

### CNC 5-axis water jet machine

In this process, every possible design can be realised in full. This CNC-controlled method is highly accurate and efficient.

### CNC cutting plotter

Any soft material can be cut on the automatic cutting machine. The cut edges and dimensional accuracy of the parts are very precise, thanks to the oscillating knife.

### Punching machines

In our punching and stamping department, soft materials can be punched with economical band steel tools.

### Laminating and glue roller coating machine

Foam boards and PE foam or polyurethane foam parts are permanently bonded using these procedures.

### Thermo-cutting and welding machines

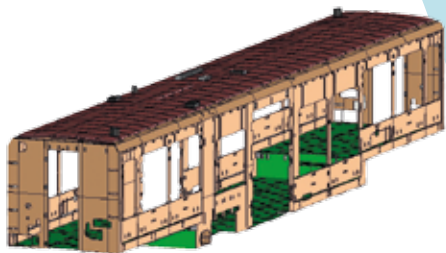
The foam shaped as desired by thermal welding using a heated steel tool, and it can be joined permanently by butt welding.







## Engineering



### Design and CAD drawings

The design department creates a complete set of drawings of exact-fit cut insulation parts, based on the client's rail vehicle models. We also modify already constructed insulation parts to our raw material sizes. The data is created using SolidWorks and saved as drawing and production data. Depending on the vehicle segment, other demands may be placed on the insulating material. We work closely with the client's design department to achieve the highest possible quality.

### Noise control engineering

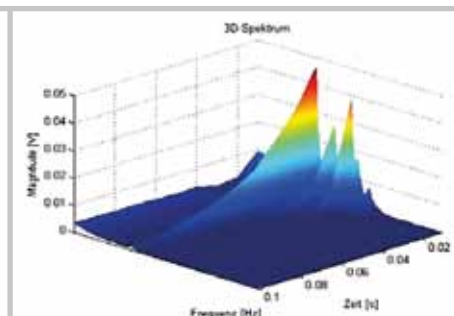
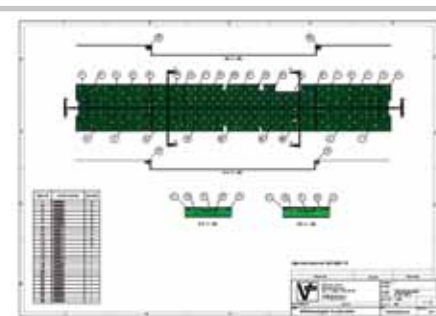
Other core competencies are in noise control engineering, the recording of actual states, as well as the design, calculation and construction of acoustic measures and solutions in the areas of airborne and structure-borne noise. We examine

the causes of noise or vibration problems, suggest possible solution options, and prepare technical reports to enable the client to make decisions.

Our company is active in all areas of acoustic technology and in every industry, nationally and internationally. We offer our customers optimized, object-specific acoustic solutions: Our specialists' decades of experience mean that we can give our clients and partners the best possible, acoustically coordinated and economically optimized concepts and solutions.

### FEM calculations

By means of computer simulation using the finite element method (FEM) and multi-body simulation (MBS), the real behaviour of products can be investigated and optimized virtually.





## Silphon® 6



### Melamine resin foam, aluminium-laminated, self-adhesive

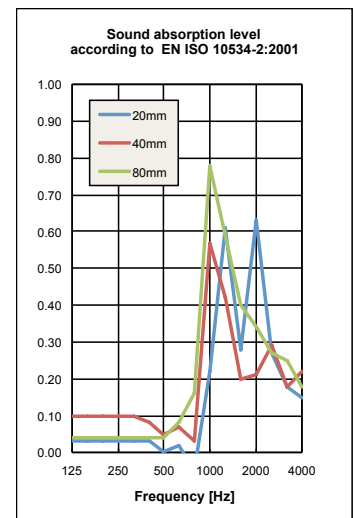
The melamine resin foam is laminated together with a thin pure aluminium foil. Thanks to the covering layer, the following properties are obtained:

- Diffusion impermeability (vapour barrier)
- Wipeable surface

The material can be used for thermal insulation and (to a limited extent) for sound absorption. Silphon® 6 is especially used in: Machinery and vehicle construction. Silphon® 6 is free of mineral fibres and physiologically safe.

<b>melamine resin foam:</b>	standard	value	unit
color		light gray	
cell structure		open	
density (Min./Max.)	ISO 845	8 11	kg/m <sup>3</sup>
compressive strength (Min./Max.)	ISO 3386-1	5 10	kPa
tensile strength	ISO 1798	90	kPa
elongation at break	ISO 1798	10	%
maximum application temperature 1)	Min.	-150	° C
	Max.	180	
<b>aluminum foil:</b>	standard	value	unit
material		Al 99.5	%
thickness		0.030	mm
<b>combined material:</b>	standard	value	unit
fire behaviour	DIN 5510-2	S4, SR2, ST2	
2)	CEN TS/45545 R1	HL1-HL3	

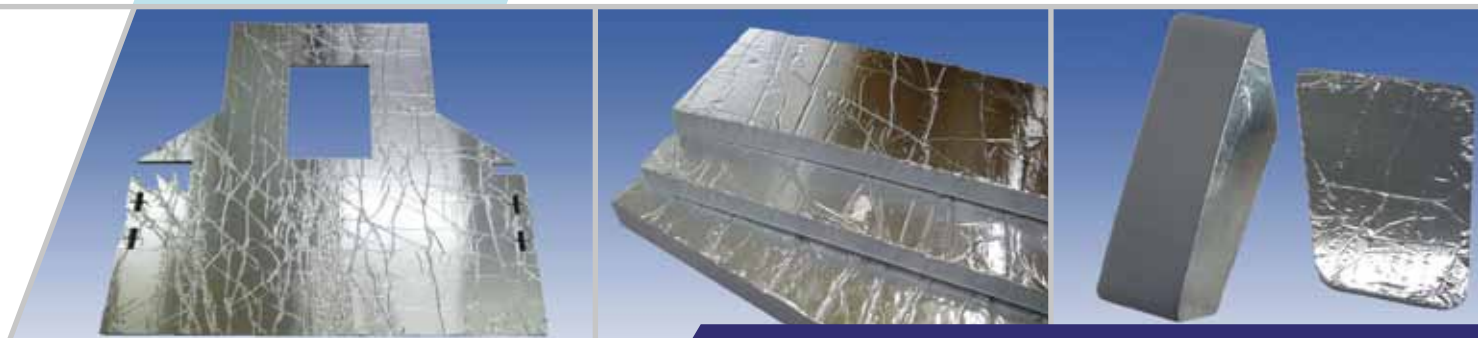
- 1) with adhesive layer  
2) glued on metal plate



### Delivery forms

In sheets in standard format 2500x 1250 mm or 2100x 1250 mm in thicknesses up to 500 mm. Finished parts, punched/ stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V2.0





## Silphon® 7



### Melamine resin foam, self-adhesive

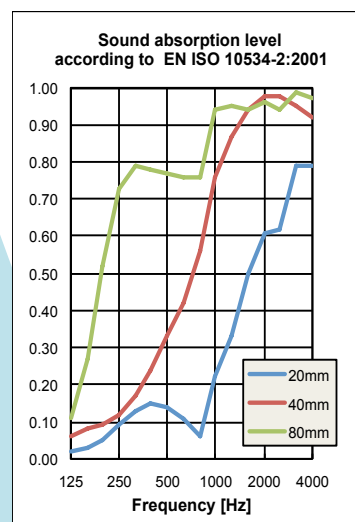
Melamine foam consists of a thermosetting, elasticised foam based on melamine resin as raw material. The thermosetting character and the open-cell characteristics of the melamine resin foam provide attractive properties:

- High sound absorption

- Low thermal conductivity
- High fire safety
- Low weight
- High cont. operation temperatures
- Does not become brittle at low temperatures

DATA	standard	value	unit
color		light gray	
cell structure		open	
density (Min./Max.)	ISO 845	8 11	kg/m <sup>3</sup>
compressive strenght (Min./Max.)	ISO 3386-1	5 10	kPa
tensile strenght	ISO 1798	90	kPa
elongation at break	ISO 1798	10	%
thermal conductivity λ	EN 12667 T <sub>m</sub> = 0 °C	0.032	W/(m K)
maximum application temperature 1)	Min.	-40	°C
	Max.	+90	
fire behaviour 2)	DIN 5510-2	S4, SR2, ST2	
	CEN TS/ 45545 R1	HL1-HL3	

- 1) with adhesive layer  
2) glued on metal plate



### Delivery forms

In sheets in standard format 2500x 1250 mm or 2100x 1250 mm in thicknesses up to 500 mm.

Finished parts, punched/stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes.

V1.0





## Silphon® 7-H



### Melamine resin foam, hydrophobic, self-adhesive

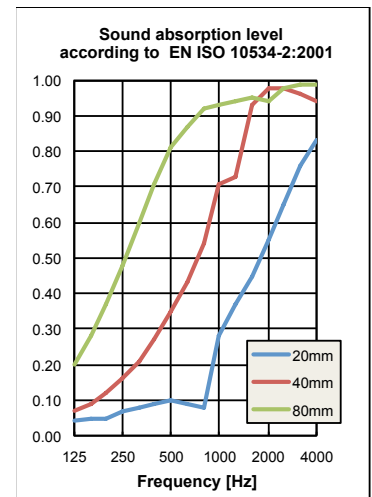
The melamine resin foam is made water and oil repellent by a later coating process. This way, the following additional properties are achieved:

- Greatly reduced absorption of drip and splash water
- Lower compression hardness

The material can be used for thermal insulation and for sound absorption. Silphon® 7-H is especially used in: Machinery and vehicle construction Silphon® 7-H is free of mineral fibres and physiologically safe.

DATA	Standard	Value	Unit
Colour		Dark grey	
Cell structure		open	
Density / specific gravity (Min./Max.)	ISO 845	8 11	kg/m <sup>3</sup>
Compressive stress / compression hardness (Min./Max.)	ISO 3386-1	2 8	kPa
Tensile strength	ISO 1798	100	kPa
Elongation at break	ISO 1798	10	%
Hydrophobicity 1)	ISO 14419	A	
Thermal conductivity $\lambda$ 2)	EN 12667 $T_m = 0^\circ\text{C}$	0.032	W/(m K)
Temperature resistance 3)	Min.	-40	°C
	Max.	+150	
Fire behaviour 4)	DIN 5510-2	S4, SR2, ST2	
	CEN TS/ 45545 R1	HL2	

- 1) Tested on the basis of the ISO standard
- 2) Value before hydrophobic treatment
- 3) With self adhesive layer
- 4) Glued to sheet metal



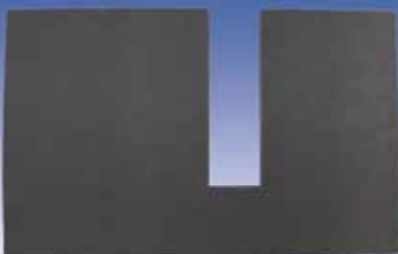
### Delivery forms

In sheets in standard format 2500x 1250 mm or 2100x 1250 mm in thicknesses up to 80 mm.

Finished parts, punched/stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes.

V1.0







## Silphon® 8



### Melamine resin foam with nonwoven material, black, self-adhesive

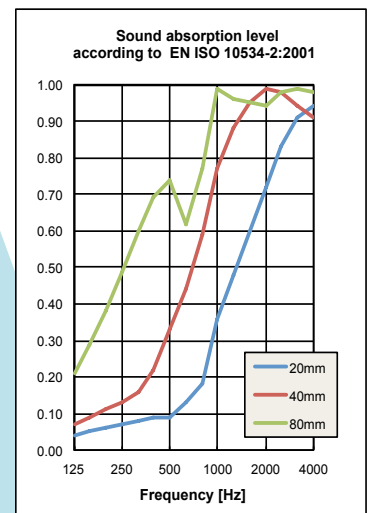
The melamine resin foam is laminated with a needle-punched nonwoven material based on carbon fibre and PES. Thanks to the covering layer, the following properties are obtained:

- Higher abrasion resistance

- Reduced absorption of splash water
- The material can be used for thermal insulation and for sound absorption. Silphon® 8 is especially used in: The construction of machinery, ventilation systems and vehicles. Silphon® 8 is free of mineral fibres and physiologically safe.

DATA ON THE FOAM	Standard	Value	Unit
Colour		Light grey	
Cell structure		open	
Density / specific gravity (Min./Max.)	ISO 845	8 11	kg/m <sup>3</sup>
Compressive stress / compression hardness (Min./Max.)	ISO 3386-1	5 10	kPa
Tensile strength	ISO 1798	90	kPa
Elongation at break	ISO 1798	10	%
Temperature resistance 1)	Min.	-40	°C
	Max.	+90	
DATA ON THE ALU FOIL	Standard	Value	Unit
Material	Carbon fibre (PANOX) PES	80..90 10..20	%
Thickness	+/- 10%	2	mm
DATA ON THE COMPOSITE:	Standard	Value	Unit
Fire behaviour 2)	DIN 5510-2	S4, SR2, ST2	

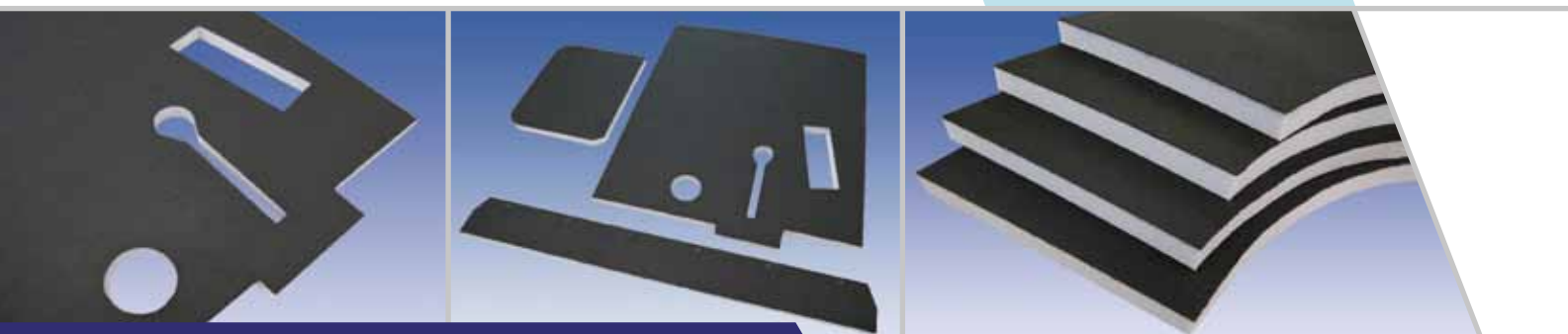
- 1) With self adhesive layer  
2) Glued to sheet metal



### Delivery forms

In sheets in standard format 2500x 1250 mm or 2100x 1250 mm in thicknesses up to 500 mm. Finished parts, punched/ stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0







# Plastazote

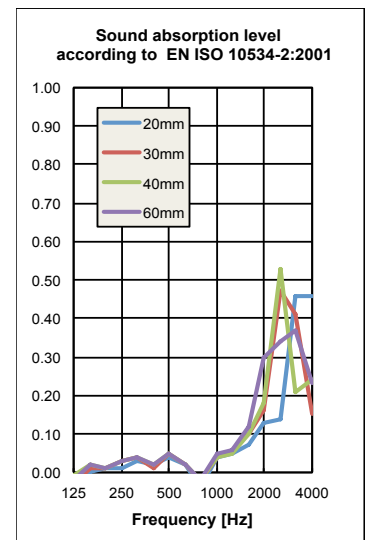


## Plastazote MP 15 FR / 15 kg/m<sup>3</sup> PE foam, flame-retardant

Foam with low density cross-linked PE, with a closed cell structure and treated with flame-retardant. The material is highly suitable for thermal insulation and to some extent for sound absorption at

higher frequencies. Possible areas of application are in mechanical engineering, insulation in aircraft, water-borne vessels or rail vehicles and packaging applications.

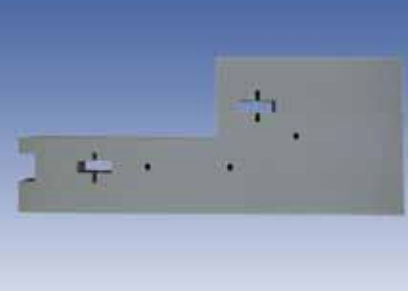
DATA	standard	value	unit
color		gray	
cell structure		closed	
density (Min./Max.)	ISO 7214	13.5 16.5	kg/m <sup>3</sup>
compression stress-strain (at 10, 25, 40, and 50% compression)	ISO 7214	18	kPa
		35	
		62	
		89	
compression set: 25% / 22h / after 24h, 50% / 22h / after 24h	ISO 7214	5 26	%
tensile strenght	ISO 7214	353	kPa
tensile elongation	ISO 7214	146	%
thermal conductivity λ	ISO 8302 T <sub>m</sub> = 10°C	0.039	W/(m K)
maximum application temperature		-70	°C
		+95	
fire behaviour	DIN 5510-2 (10mm and 65mm)	S4, ST2, SR2	



## Delivery forms

In sheets in standard format 1800x 1050 mm in thicknesses up to 60 mm. Finished parts, punched/stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0





## Fiberform 62 T 2SL

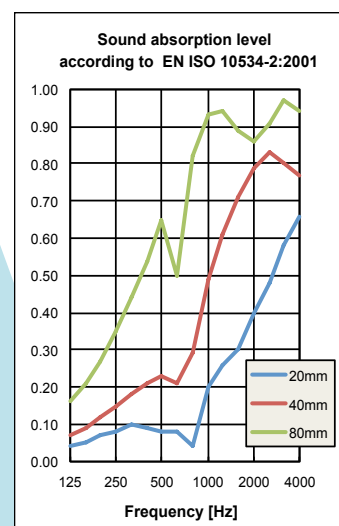


### Polyester fibre mat 40 kg/m<sup>3</sup>

Fiberform 62 T 2SL is an innovative product based on thermally joined, pure PET staple fibres. The mechanical and thermo-acoustic properties are maintained over a long period of use. The material can be used both for thermal insulation and for sound absorption. Fiberform 62

T 2SL is used especially in: Room acoustics, the building industry, and in the construction of vehicles and ventilation systems. Fiberform 62 T 2SL is free of mineral fibres, physiologically safe and can easily be recycled.

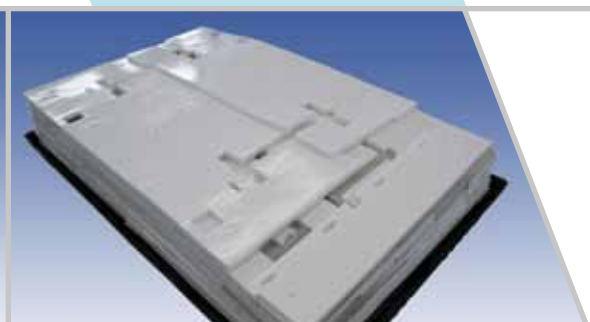
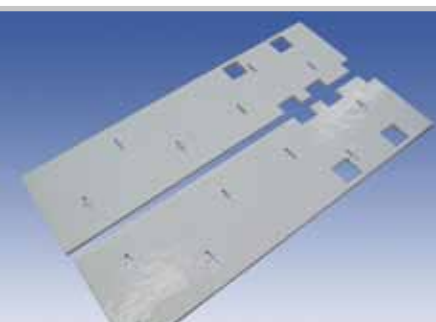
DATA	Standard	Value	Unit
Colour		white	
Surface		Smooth	
Density / specific gravity (Min./Max.)		36 44	kg/m <sup>3</sup>
Diffusion resistance $\mu$		3.11	
Thermal conductivity	EN 12667	0.037	W/(m·K)
Calorific value		24980	kJ/kg
Specific thermal capacity		0.24	kJ/(kg·K)
Temperature resistance (Min./Max.)		-40 110	°C
Fire behaviour	CH-VKF: BKZ	5.2	
	DIN 5510-2:2009	S3, SR2, ST2	
	UNI CEI 11170	1A, F1	
	NFP 92-501	M2	
	NFP 92-505	satisfactory	
	ASTM E 162	tested	
	ASTM E 662	tested	



### Delivery forms

In sheets of standard format 2100x 1300 mm in thickness of 20 to 80 mm. Finished parts, punched/stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request.

Optionally with self-adhesive layer or laminated surfaces. This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V2.01





## Vibraflex ST



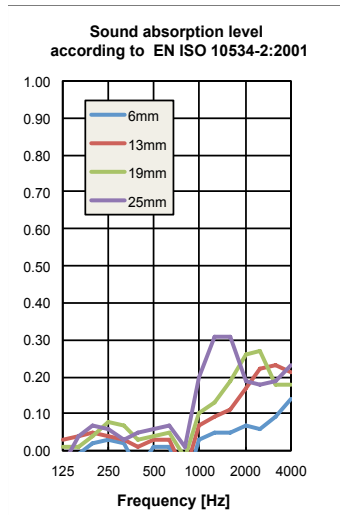
### Vibraflex ST / K-Flex ST Synthetic rubber

Closed-cell insulating material based on synthetic rubber. Suitable applications include the thermal insulation of pipes (in-

cluding bends, flanges and fittings), heat exchangers and air ducts in building, rail vehicle and water-borne vessel construction.

DATA ON THE FOAM	Standard	Value	Unit
Colour		black	
Cell structure		closed	
Density / specific gravity (Min./Max.)		45 55	kg/m <sup>3</sup>
Water vapour diffusion-resistance $\mu$ (min.)	EN 12086	7000	
Thermal conductivity $\lambda$	EN 12667 $T_m = 0^\circ\text{C}$	0.036	W/(m K)
Temperature resistance 1)	Min.	-40	$^\circ\text{C}$
	Max.	+85	
Fire behaviour 2)	DIN 5510-2 (6mm)	S4, SR2, ST2	
	DIN 5510-2 (32mm)	S3, SR1, ST2	
	UNI CEI 11170	Class 1, F3	
	NF P 92-501	M1	

- 1) With self adhesive layer  
2) Glued to sheet metal

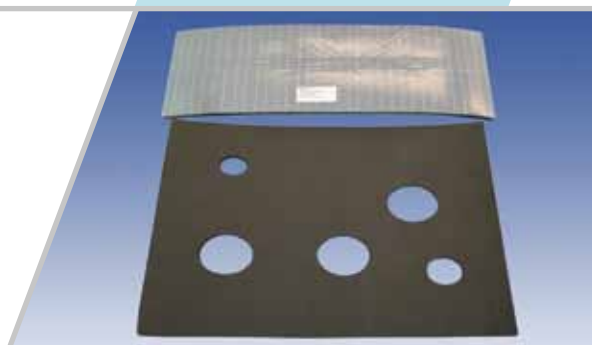


### Delivery forms

As rolls of material of 1000 mm or 1500 mm in width and in thicknesses of 6, 10, 13, 19, 25, 40 and 50 mm. Finished parts, punched/stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request.

Can be supplied with or without a self-adhesive layer.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0







# Vibraflex ECO



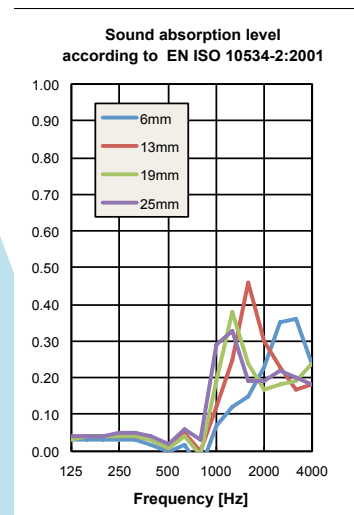
**Vibraflex ECO**  
**K-Flex ECO**  
**Synthetic rubber, halogen-free**

Closed-cell insulating material based on synthetic rubber, halogen-free. Suitable applications include the thermal insulation of pipes (including bends, flanges and fittings), heat exchangers and air

ducts in building, rail vehicle and waterborne vessel construction. Vibraflex ECO meets the demands placed on eco-friendly insulating material, giving off little smoke and minimal harmful emissions in the event of fire.

DATA ON THE FOAM	Standard	Value	Unit
Colour		green	
Cell structure		closed	
Density / specific gravity (Min./Max.)		55 65	kg/m <sup>3</sup>
Water vapour diffusion-resistance $\mu$ (min.)	EN 12086	3000	
Thermal conductivity $\lambda$	EN 12667 $T_m = 0^\circ\text{C}$	0.038	W/(m K)
Temperature resistance 1)	Min.	-40	$^\circ\text{C}$
	Max.	+85	
Fire behaviour 2)	UNI CEI 11170	Class 1A, F2	

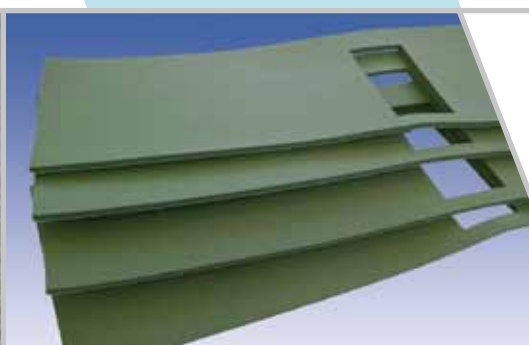
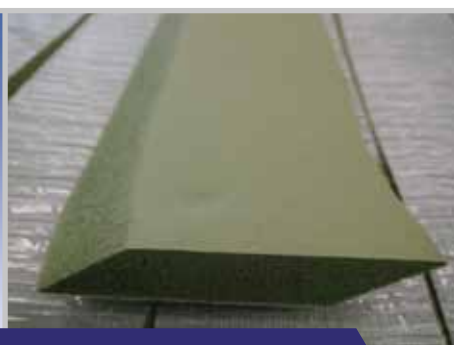
- 1) With self adhesive layer
- 2) Glued to sheet metal



## Delivery forms

As rolls of material of 1000 mm in width and in thicknesses of 6, 10, 13, 19, 25, and 32 mm. Special thicknesses and sheets available on request. Finished parts, punched/stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request. Can be supplied with or without a self-adhesive layer.

Can be supplied with or without a self-adhesive layer. This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0





## Armaflex NH



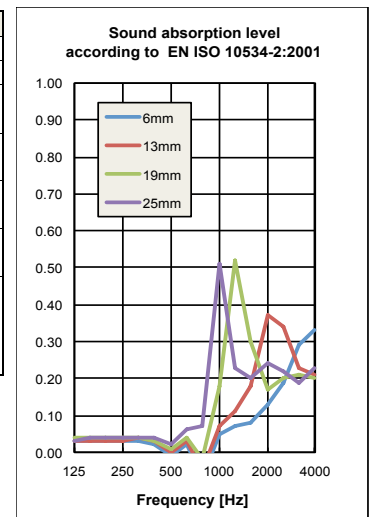
### Synthetic rubber, halogen-free

Closed-cell insulating material based on synthetic rubber, halogen-free. Suitable applications include the thermal insulation of pipes (including bends, flanges and fittings), heat exchangers and air ducts in building, rail vehicle and water-borne

vessel construction. Armaflex NH meets the demands placed on eco-friendly insulating material, giving off little smoke and minimal harmful emissions in the event of fire.

DATA ON THE FOAM	Standard	Value	Unit
Colour		grey	
Cell structure		closed	
Density / specific gravity (Min./Max.)		68 70	kg/m <sup>3</sup>
Water vapour diffusion-resistance $\mu$ (min.)	EN 12086	2000	
Thermal conductivity $\lambda$	EN 12667 $T_m = 0^\circ\text{C}$	0.040	W/(m K)
Temperature resistance 1)	Min.	-50	$^\circ\text{C}$
	Max.	+85	
Fire behaviour 2)	DIN 5510-2 (3mm)	S4, SR2, ST2	
	DIN 5510-2 (25mm)	S4, SR2, ST2	

- 1) With self adhesive layer  
2) Glued to sheet metal

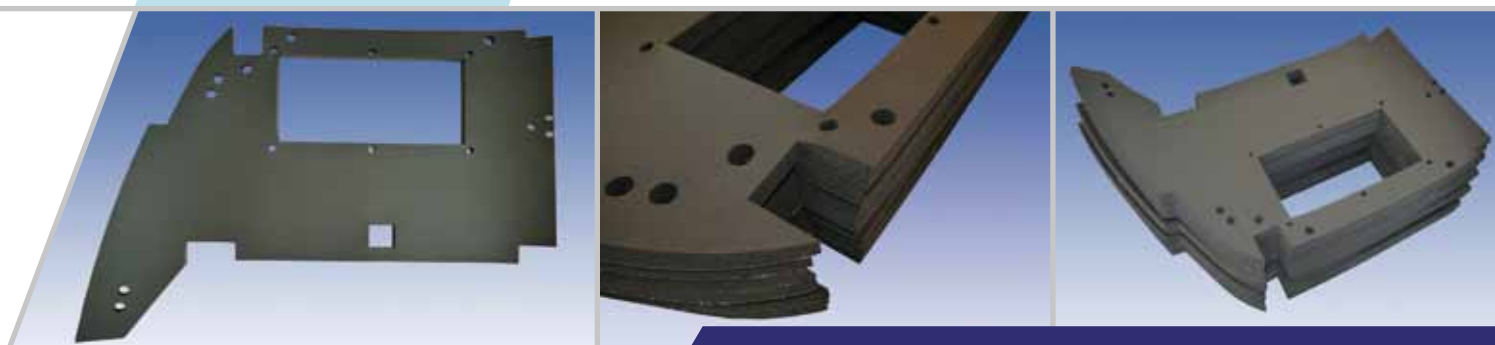


### Delivery forms

As rolls of material of 1000 mm in width and in thicknesses of 6, 10, 13, 19, 25, and 32 mm. Special thicknesses and sheets available on request. Finished parts, punched/stamped or cut to shapes and dimensions according to specification or drawing can be manufactured on request.

Can be supplied with or without a self-adhesive layer.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0





## Vibra-Railfolie 2.5 mm

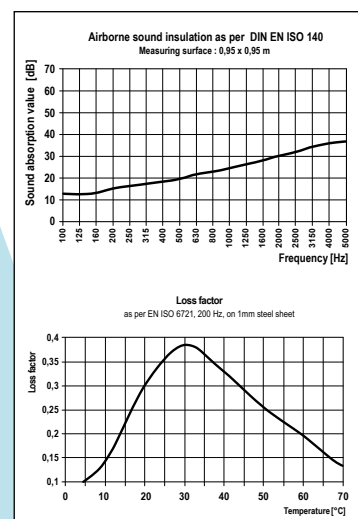


### PVAC foil with aluminium surface Self-adhesive on one side

A flexible, composite, heavy thermoplastic film based on PVAC and heavy mineral substances. Free of asbestos and heavy metals or other substances that are hazardous to health or the environment. Suitable for improving airbor-

ne sound insulation by ballasting light components made of wood, chipboard, plasterboard, thin sheets, etc. or for insulating structure-borne noise emission (sound deadening) of sheet metal, or hard plastic constructions.

DATA	Standard	Value	Unit
Colour		Dark grey	
Surface		Alu embossed	
Weight per unit area (Min./Max.)		4.05 4.95	kg/m <sup>2</sup>
Material thickness (approx.)		2.5	mm
Airborne sound insulation R	ISO-140	(see diagram)	dB
Loss factor	ISO-6721	(see diagram)	
Temperature resistance (Min./Max.)		-25 100	°C
Fire behaviour	UNI CEI 11170	1A, F0	
	DIN 5510-2	S4, SR2, ST2	
	CEN TS/45545 R1	HL3	



### Delivery forms

As sheets in the standard format 1200 x 985 mm (special sizes on request). Finished parts, punched or cut to customer specifications. Shapes and dimensions according to specification or drawing.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0







## Vibra-Railfolie 4.0 mm

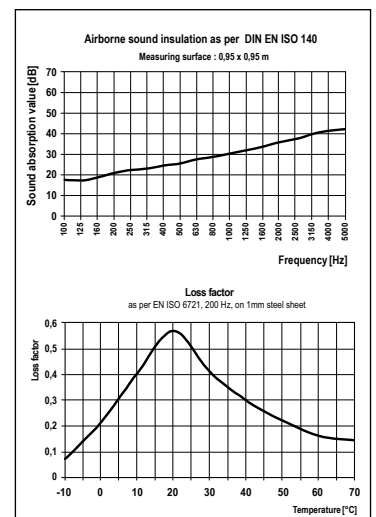


### PVAC foil with aluminium surface Self-adhesive on one side

A flexible, composite, heavy thermoplastic film based on PVAC and heavy mineral substances. Free of asbestos and heavy metals or other substances that are hazardous to health or the environment. Suitable for improving airbor-

ne sound insulation by ballasting light components made of wood, chipboard, plasterboard, thin sheets, etc. or for insulating structure-borne noise emission (sound deadening) of sheet metal, or hard plastic constructions.

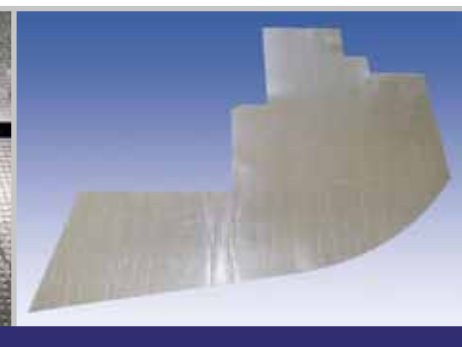
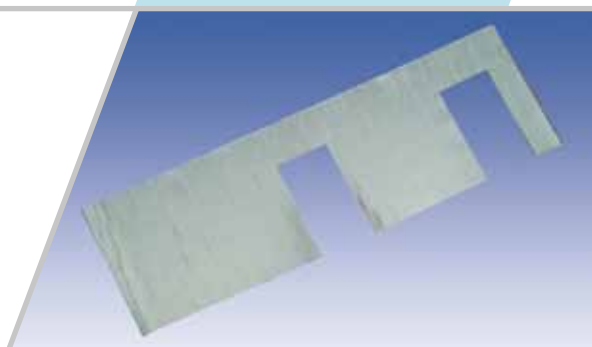
data	standard	value	unit
color		dark gray	
surface		aluminium	
area weight (min./max.)		7.4 9.1	kg/m <sup>2</sup>
material thickness (ca.)		4.1	mm
sound insulation R	ISO-140	(cf. graphic)	dB
loss factor	ISO-6721	(cf. graphic)	
maximum application temperature		-25 100	°C
fire behaviour	UNI CEI 11170	1A, F0	
	DIN 5510-2	S4, SR2, ST2	
	CEN TS/45545 R1	HL3	



### Delivery forms

As sheets in the standard format 1050x 1050 mm (special sizes on request). Finished parts, punched or cut to customer specifications. Shapes and dimensions according to specification or drawing.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0





## UP GM 203



### Hard mat

Composite material with good electrical insulation values based on glass filament mat (substrate) and polyester resin. Halogen-free hard mat in GPO 3 quality with high breakdown voltage in air and oil, high arcing and tracking resistance, self-

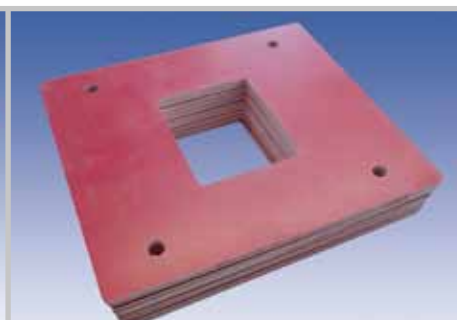
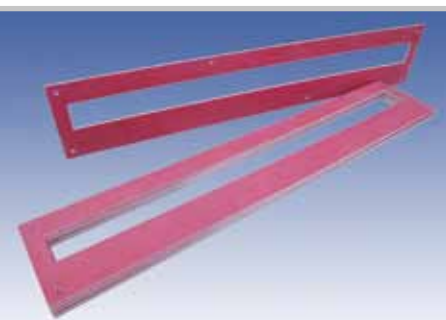
extinguishing and giving off little smoke in the event of fire. Use as an insulating material in electrical engineering structures such as power distribution cabinets, separating plates, rail supports, etc.

DATA ON THE FOAM	Standard	Value	Unit
Colour		red	
Material structure		solid	
Density / specific gravity (Min./Max.)		1.5	g/cm <sup>3</sup>
		1.9	
Impact strength (Charpy)	IEC-893-2	40	kJ/m <sup>2</sup>
Modulus of elasticity		8000	MPa
Dielectric strength (in oil at 90°C) Vertical: Parallel:	IEC-893-2	9	kV/mm
		35	kV/mm
Insulation resistance (after immersion in H <sub>2</sub> O)	IEC-893-2	500	MΩ
Check number for tracking	IEC-893-2	500	
Thermal conductivity λ	ISO 8302 T <sub>m</sub> = 10°C	0.82	W/(m K)
Fire behaviour	DIN 5510-2	S4, SR2, ST2	
	UNI CEI 11170-3	LR 4, F1	
	CEN TS 45545 R23	HL1-HL2	
	NF F 16 101	M1, F1	

### Delivery forms

As sheets in the standard format 2050 x 1000 mm in thicknesses from 2 to 10 mm. Finished parts, milled to shapes and dimensions according to specification or drawing can be manufactured on request.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0





# Vibra® Drain



## Polyester fibre mat with flexible clearance fabric

Vibra®drain is a composite of polyester fibre mat (100% PET staple fibres) and a 10 mm clearance fabric made of polyamid fibres. This way, the following additional properties are achieved:

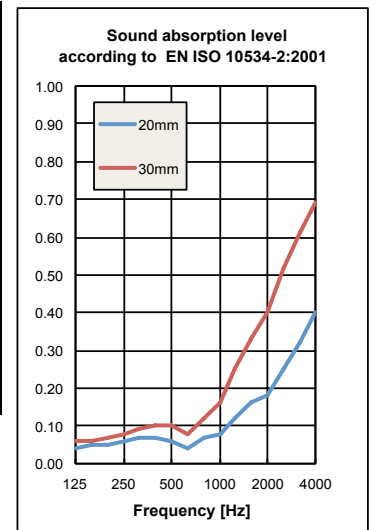
- Drainage function, thanks to the clearance fabric

- Prevention of saturation with water
- Faster drying after moisture absorption
- Dimensional stability against humidity and temperature influences

The material can be used for thermal insulation and for sound absorption.

Vibra®Drain is used in particular for: Vehicle construction.

DATA ON THE FOAM	Standard	Value	Unit
Colour		white	
Surface		Smooth	
Density / specific gravity (Min./Max.)	ISO 845	36 44	kg/m <sup>3</sup>
Diffusion resistance $\mu$		3.11	
Thermal conductivity	EN 12667	0.037	W/(m·K)
Temperature resistance	Min.	-40	°C
	Max.	110	
DATA ON THE PA FABRIC			
Colour		black	
Weight per unit area	ISO 9864	0.26	Kg/m <sup>2</sup>
Temperature resistance	Min.	-40	°C
	Max.	80	
DATA ON THE COMPOSITE			
Fire behaviour	DIN 5510-2:2009	S4, SR2, ST2	

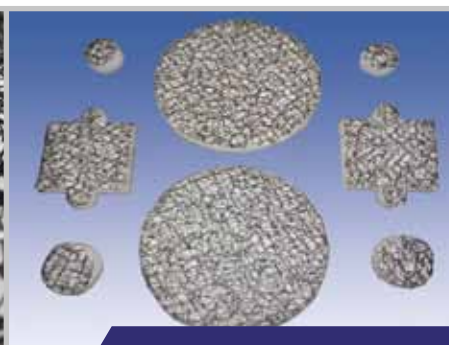


## Delivery forms

As rolls in the standard format of 50,000 x 1000 x 20 mm and 25,000 x 1000 x 30 mm. Finished parts, punched/stamped or cut to shapes and dimensions according to specification or drawing can be manu-

factured on request.

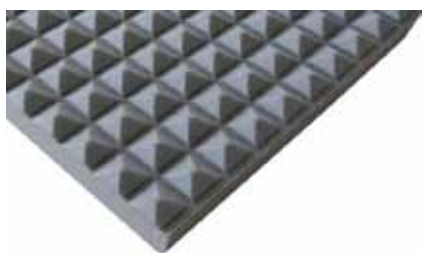
This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V2.0







## Silphon® pyramid-shaped FR



### PE foam, flame-retardant

Foam with low density cross-linked PE, with a closed cell structure and treated with flame-retardant. The material is highly suitable for thermal insulation and to some extent for sound absorption at higher frequencies.

-> Hydrolysis resistance

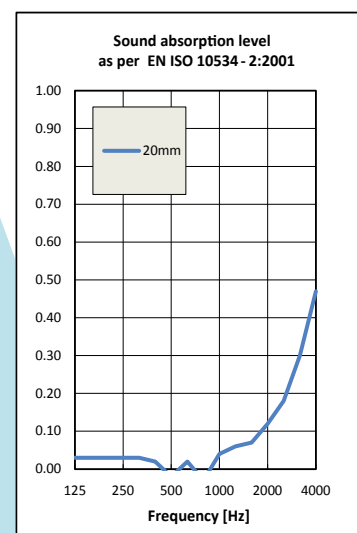
Benefits of use as profiles:

- Ventilation in the area of the profile (condensation dries more quickly)
- Improvement of the acoustic properties (sound absorption is slightly better)

DATA	Standard	Value	Unit
Colour		grey	
Sell structure		closed	
Density / specific gravity (Min./Max.)*	ISO 7214	13.5 16.5	kg/m <sup>3</sup>
Compressive stress / compressive hardness (at 10, 25, 40, and 50% compression)*	ISO 7214	18	kPa
		35	
		62	
		89	
Compression Set:*	ISO 7214		%
25% / 22h / after 24h,		5	
50% / 22h / after 24h		26	
Tensile strength*	ISO 7214	353	kPa
Breaking elongation*	ISO 7214	146	%
Thermal conductivity λ*	ISO 8302	0.039	W/(m K)
	T <sub>m</sub> = 10° C		
Thermal stability (Min./Max.)		-70	°C
		+95	
Fire behaviour	EN 45545-2 R1** (10mm to 80mm)	HL3	
	GOST	G2, V1, D2, (I) - 1.57, T2	

\* These values relate to the substrate, without profiling

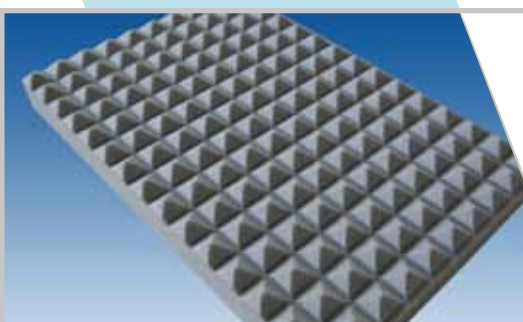
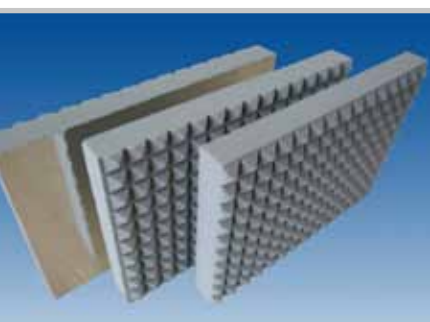
\*\* Only in combination with an aluminium-laminated rear



### Delivery Forms

In sheets of standard format 1800x1000 mm in thickness up to 120 mm. Material thicknesses over 30 mm are laminated in layers. Finished parts, punched/stamped or cut to shapes and dimensions according to specifications or drawings can be manufactured on request.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes V1.0





## Armaflex Rail SD



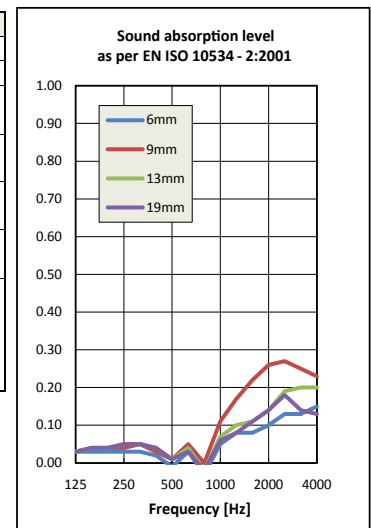
### Synthetic rubber, halogen-free

Closed-cell insulating material based on synthetic rubber, halogen-free. Suitable applications include the thermal insulation of pipes (including bends, flanges and fittings), heat exchangers and air ducts in building, rail vehicle and water-borne vessel construction. Armaflex Rail SD meets the demands placed on eco-

friendly insulating material, giving off little smoke and minimal harmful emissions in the event of fire.

DATA ON THE FOAM	Standard	Value	Unit
Colour		blue	
Cell structure		closed	
Density / specific gravity (Min./Max.)		68	kg/m <sup>3</sup>
		70	
Water vapour diffusion resistance $\mu$ (min.)	EN 12086	5000	
Thermal conductivity $\lambda$	EN 12667	0.040	W/(m K)
Temperature resistance 1)	$T_m = 0^\circ\text{C}$		
	Min.	-50	$^\circ\text{C}$
	Max.	+85	
Fire behaviour 1)	CEN/TS 45545-2	HL2	
	GOST 30244-94 / 30402-96 / 12.1.044-89 sect. 4.18-20	G, V, D, (I) -, T	

1) With self adhesive layer

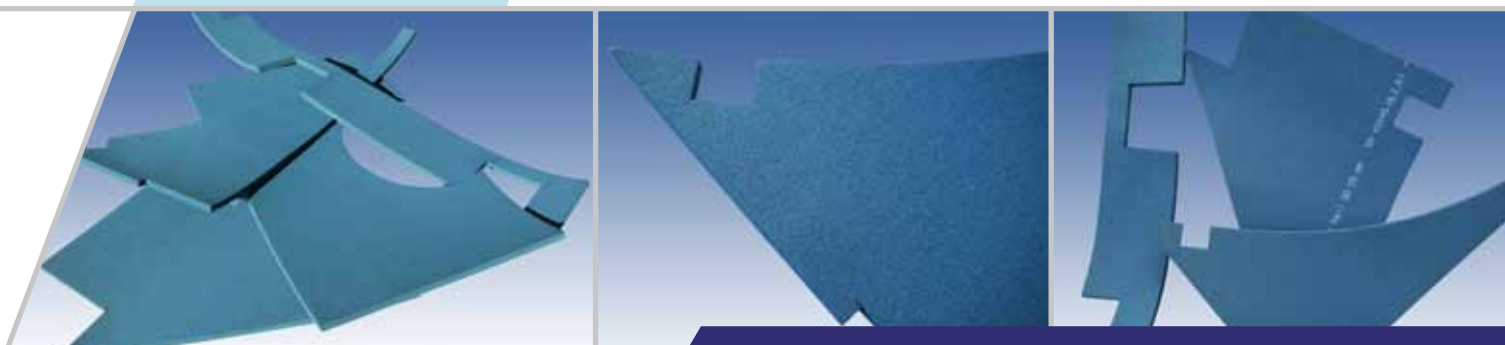


### Delivery forms

As rolls of material of 1000 mm in width and in thicknesses of 6, 10, 13, 19, 25, and 32 mm. Special thicknesses and sheets available on request. Finished parts, punched/stamped or cut to shapes and dimensions according to specifica-

tion or drawing can be manufactured on request. Can be supplied with or without a self-adhesive layer.

This information is correct to the best of our knowledge and technical expertise. We reserve the right to make changes. V1.0





## Rail vehicle components



### Vibration insulation

We have an extensive range of vibration insulation materials for effective vibration control measures.



### Rubber moulded parts

Custom moulded rubber parts in a variety of qualities and shapes.



### Rubber profiles

Customized rubber profiles in a great variety of geometries and qualities.



### Rubber gaskets

Rubber gaskets in accordance with drawings in a variety of shapes and qualities.







**Plastics**

Plastic sheets, profiles, or moulded parts in accordance with quality specifications.



**Hoses**

Universal range of technical hoses and hose systems



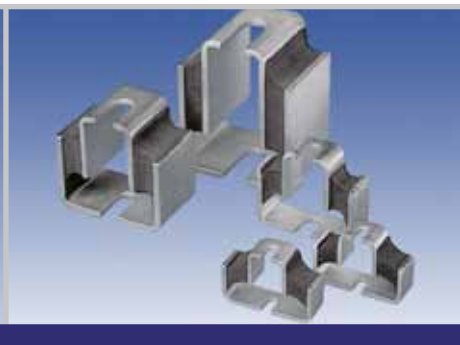
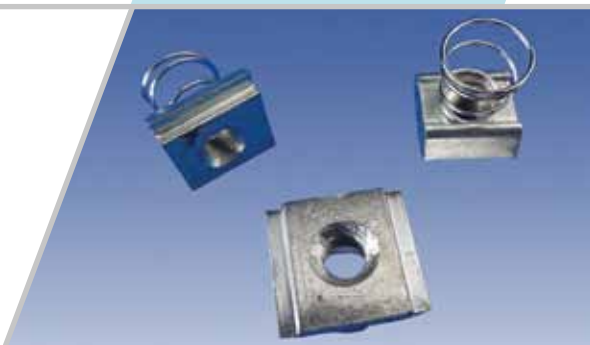
**Drive technology**

Standard products of various drive components.



**Fastening technology**

Product portfolio starting with fasteners and connectivity products.







**ONLINE-CATALOGUE**  
**[www.vibraplast.ch](http://www.vibraplast.ch)**



*Noise Prevention / Vibration Insulation  
Rubber Technology / Plastics / Drive Technology  
Foams / Packaging Technology  
Operating Resources / Tools  
Wittenwilerstrasse 25 / Industrie Nord / CH-8355 Aadorf  
T +41 52 368 00 50 / F +41 52 368 00 51  
[info@vibraplast.ch](mailto:info@vibraplast.ch) / [www.vibraplast.ch](http://www.vibraplast.ch)*